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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/070,580	08/09/2002	Thomas Marold	21212.PUS	7200

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EXAMINER	
YAM, STEPHEN K	
ART UNIT	PAPER NUMBER
2878	

DATE MAILED: 06/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/070,580	MAROLD, THOMAS	
	Examiner	Art Unit	
	Stephen Yam	2878	

-- The MAILING DATE of this communication appears on the cover sh et with the correspond nc address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-5 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1,2 and 4 is/are rejected.

7)☐ Claim(s) 3 and 5 is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 09 August 2002 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☒ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Priority

The application as filed contains priority data from two separate PCT applications, PCT/EP01/**07391** and PCT/EP01/**07931**. It appears that Applicant unintentionally interchanged digits for the serial number of the PCT- the transmittal contains PCT/EP01/07391 while the oath/declaration contains PCT/EP01/07931. It appears that PCT/EP01/07931 is the correct serial number- however, Applicant also submitted the PCT Chapter I search report for PCT/EP01/07931 while submitting the PCT Chapter II search report for PCT/EP01/07391. Applicant is required to submit all correct documents in order to successfully claim priority under 35 U.S.C. 371.

Information Disclosure Statement

1. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Further, the references submitted corresponding to the cited references in the PCT search report have not been included in an Information Disclosure Statement. These references are required to be formally submitted in an Information Disclosure Statement in order to be considered.

Claim Objections

2. Claims 1-3 are objected to because of the following informalities:

Claims 1-3 contain multiple improper antecedent basis issues such as "the pixel" and "the optical axis" on Claim 1, line 5, and "the focusing member" and "the telescope lens" on Claim 1, line 9. Applicant is required to provide correct antecedent basis for all terms within the claim language to adequately define the intended invention.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1, 2, and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mallory et al. US Patent No. 4,945,220 in view of Smith US Patent No. 4,371,866.

Regarding Claims 1, 2, and 4, Mallory et al. teach (see Fig. 1) an autofocusing method having image sensors (16) that resolve the image signal into individual image elements (pixels) such as CCD lines or matrices (see Col. 3, lines 29-30), characterized in that, on the basis of a pixel, a local signal amplitude is calculated from the monotonically decreasing or increasing signal all the way to a next local maximum and minimum (see Fig. 3a and 3b), as long as this

local signal amplitude is considerably smaller than the maximum signal and a focusing member of a telescope lens is in the focusing position for short focusing distances, the focusing member is shifted in large increments (see Col. 6, lines 44-58 and Col. 7, lines 1-8), depending on the magnitude of the local signal amplitude, the focusing distance is shortened in the area of greater focusing distances in relation to the maximum signal and to the position of the focusing member (see Col. 7, lines 1-20), and selecting an increment range that is comparable to an optical depth of field (see Col. 8, lines 17-26). Regarding Claim 2, Malloy et al. teach for images of two-dimensional image detectors (see Col. 3, line 29), the calculations are performed in the directions of rows or columns (See Col. 6, lines 16-21). Malloy et al. do not teach using a pixel located closest to an optical axis as a basis, or at a certain magnitude of the local signal amplitude in relation to the maximum signal, cross correlation functions (CCF) are each additionally formed from several pixels of the image signal and from suitable comparison structures, focusing at a certain ratio of a reference function formed on the basis of the CCF to the local signal amplitude to the maximum of the CCF. Regarding Claim 4, Malloy et al. do not teach an ideal edge provided as the comparison structure for the CCF. Smith teaches a similar method, with cross correlation functions (see Col. 3, lines 28-33) formed from several (all) pixels of an image signal (21) and from suitable comparison structures (22) such as an ideal edge (see Fig. 2). Malloy et al. and Smith do not teach using a pixel located closest to an optical axis as a basis, and performing the CCF at a certain magnitude of the local signal amplitude in relation to the maximum signal, or at a certain ratio of a reference function formed on the CCF and the local signal amplitude. It is well known in the art to take focus measurements along an optical axis for greatest sensitivity, and use thresholds to trigger an action or event. It would have been obvious

to one of ordinary skill in the art at the time the invention was made to perform a cross correlation function from several pixels of the image signal and from suitable comparison structures such as an edge as taught by Smith, and to use a pixel located closest to an optical axis as a basis and to perform the CCF at a certain magnitude of the local signal amplitude in relation to the maximum signal and focus at a certain ratio, in the method of Mallory et al., to increase focus sensitivity and accurately determine focus displacement through correlation.

Allowable Subject Matter

5. Claims 3 and 5 would be allowable if rewritten to overcome the claim rejections, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

6. The following is a statement of reasons for the indication of allowable subject matter:

Regarding Claim 3, the invention as claimed, specifically in combination with the focusing path for a measurement is determined as the product resulting from the ratio of the maximum signal to the local signal amplitude, is not disclosed or made obvious by the prior art of record.

Regarding Claim 5, the invention as claimed, specifically in combination with a maximum of the CCF employed as the reference function for a ratio with the local signal amplitude to select an increment range for focus, is not disclosed or made obvious by the prior art of record.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Satoh US Patent No. 6,700,615, teaches a auto-focus method using cross-correlation of an image.

Yaji US Patent No. 5,732,292, teaches a auto-focus device by performing cross-correlation on an image signal.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen Yam whose telephone number is (571)272-2449. The examiner can normally be reached on Monday-Friday 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on (571)272-2444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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THANH X. LUU
PATENT EXAMINER